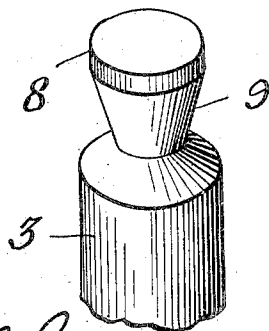
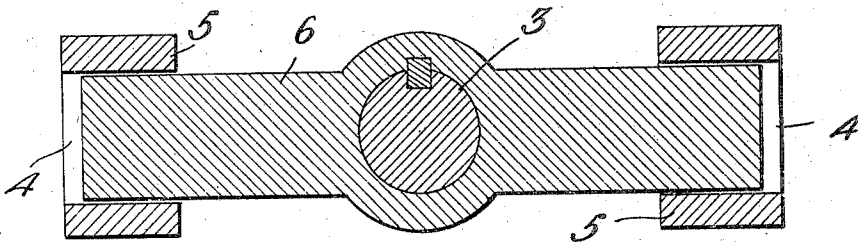
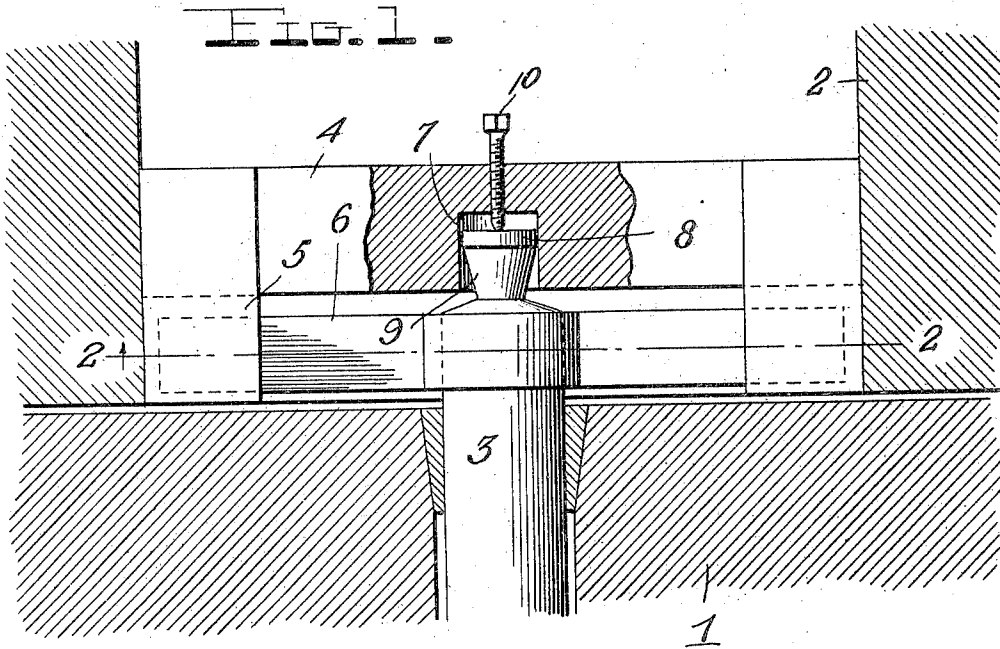


A. M. TULLY.
GRINDING MILL SPINDLE.
APPLICATION FILED MAY 25, 1909.

947,953.

Patented Feb. 1, 1910.



Witnesses

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Fig. 3.

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UNITED STATES PATENT OFFICE.

ARTHUR M. TULLY, OF ARRAN, FLORIDA.

GRINDING-MILL SPINDLE.

947,953.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed May 25, 1909. Serial No. 498,287.

To all whom it may concern:

Be it known that I, ARTHUR M. TULLY, a citizen of the United States, residing at Arran, in the county of Wakulla and State of Florida, have invented certain new and useful Improvements in Grinding-Mill Spindles, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in spindles for grinding mills.

15 The object of the invention is to provide an improved pivotal supporting and driving spindle for the upper stone of a grinding mill, whereby such stone will be permitted to move vertically but will be prevented from shifting laterally or horizontally, such construction causing the upper stone to run and wear even and utilizing the full weight and grinding surface of the stone in the grinding operation so that the capacity of the mill will be increased.

20 With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

25 Figure 1 is a detail section through portions of the two mill stones showing the invention applied thereto; Fig. 2 is a detail section taken on the plane indicated by the line 2—2 in Fig. 1 and looking in the direction of the arrow; and Fig. 3 is a detail perspective view of the upper end of the spindle.

30 Referring more particularly to the drawings 1 and 2 denote the lower and upper mill stones and 3 denotes the spindle which is rotatable in the lower stone and adapted to pivotally support the upper one. In the central opening in the latter is a balance bar or bail 4 at the ends of which are spaced depending plates 5 which receive between them the ends of a driver 6, the latter being in the form of a cross bar fixed to the spindle 3. Formed in the center of the bottom face of the bar or bail 4 is a comparatively deep cylindrical socket or recess 7 for the recep-

tion of a reduced portion 8 on the upper extremity of the spindle 3. Said reduced end 8 has a cylindrical upper portion of slightly less diameter than that of the socket 7 and its lower portion is undercut or cone-shaped, as shown at 9, to permit of a slight swinging movement of the mill stone.

Projecting vertically through the center of the bar or bail 4 is a pivot screw 10 the lower end of which is adapted to engage the top of the reduced end 8 of the spindle. Said end 8 and the cavity 7 are of such size and shape that the upper mill stone 2 is permitted to move vertically toward and from the lower stone and, consequently, the pivot screw 10 may move upwardly and leave the spindle, but at the same time said upper mill stone will be prevented from shifting laterally. This construction will, therefore, permit the full weight of the upper stone to be utilized in the grinding operation and will cause such upper stone to run even and, consequently, wear even. Since the stone will be caused to run even, its entire operative face will assist in the grinding operation and thereby materially increase the capacity of the mill.

Having thus described the invention what is claimed is:

1. In a grinding mill, the combination of upper and lower stones, a rotary spindle projecting upwardly through the lower stone and formed at its top with the reduced cylindrical end 8 and the undercut or cone-shaped portion 9, a balance bar in the upper stone and formed in the center of its bottom with a deep cylindrical cavity 7 adapted to receive the end 8 and portion 9 of the spindle, an adjustable pivot screw arranged in the top of the balance bar and adapted to rest upon the flat top of the spindle, and a driving connection between the spindle and the upper stone.

2. In a grinding mill, the combination of upper and lower stones, a rotary spindle projecting upwardly through the lower stone and formed at its top with the reduced cylindrical end 8 and the undercut or cone-shaped portion 9, a balance bar in the upper

stone and formed in the center of its bottom
with a deep cylindrical cavity 7 adapted to
receive the end 8 and portion 9 of the spin-
dle, an adjustable pivot screw arranged in
5 the top of the balance bar and adapted to
rest upon the flat top of the spindle, spaced
plates depending from the opposite side
faces of the balance bar at the ends of the
latter, and a driver bar fixed to the spindle

and having its ends projecting between said 10
spaced plates.

In testimony whereof I hereunto affix my
signature in the presence of two witnesses.

ARTHUR M. TULLY.

Witnesses:

W. J. SMITH,
R. B. FORBES.